

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
US Department of Commerce  
United States Patent and Trademark  
Office, PCT  
2011 South Clark Place Room  
CP2/5C24  
Arlington, VA 22202  
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 30 April 2001 (30.04.01)	
International application No. PCT/FI00/00687	Applicant's or agent's file reference 2990601PC/ko
International filing date (day/month/year) 11 August 2000 (11.08.00)	Priority date (day/month/year) 12 August 1999 (12.08.99)
Applicant USKELA, Sami	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

07 March 2001 (07.03.01)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  Charlotte ENGER
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

10/049437

PCT

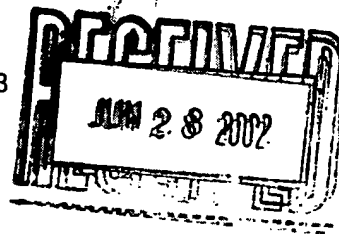
From the INTERNATIONAL BUREAU

**NOTIFICATION OF THE RECORDING  
OF A CHANGE**

(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

KOLSTER OY AB  
Iso Roobertinkatu 23  
P.O. Box 148  
FIN-00121 Helsinki  
FINLANDE



<b>Date of mailing (day/month/year)</b> 08 October 2001 (08.10.01)	<b>IMPORTANT NOTIFICATION</b>
<b>Applicant's or agent's file reference</b> 2990601PC/ko	
<b>International application No.</b> PCT/FI00/00687	<b>International filing date (day/month/year)</b> 11 August 2000 (11.08.00)

1. The following indications appeared on record concerning:

☒ the applicant ☐ the inventor ☐ the agent ☐ the common representative

<b>Name and Address</b> NOKIA NETWORKS OY Keilalahdentie 4 FIN-02150 Espoo Finland	<b>State of Nationality</b> FI	<b>State of Residence</b> FI
	<b>Telephone No.</b>	
	<b>Facsimile No.</b>	
	<b>Teleprinter No.</b>	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☒ the name ☐ the address ☐ the nationality ☐ the residence

<b>Name and Address</b> NOKIA CORPORATION Keilalahdentie 4 FIN-02150 Espoo Finland	<b>State of Nationality</b> FI	<b>State of Residence</b> FI
	<b>Telephone No.</b>	
	<b>Facsimile No.</b>	
	<b>Teleprinter No.</b>	

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office ☐ the designated Offices concerned  
☐ the International Searching Authority ☒ the elected Offices concerned  
☐ the International Preliminary Examining Authority ☐ other:

<b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	<b>Authorized officer</b>  Marie-Thérèse Priser  Telephone No.: (41-22) 338.83.38
--	---

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 00/00687

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04Q 7/38

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04Q, H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO 0024183 A1 (ASPECT TELECOMMUNICATIONS CORPORATION), 27 April 2000 (27.04.00), abstract --	1-4,6,13-15
X	WO 9726749 A1 (INTERACTIVE TELECOM INC.), 24 July 1997 (24.07.97), page 5, line 1 - page 7, line 9 --	1,7,13
A	US 5309512 A (BLACKMON ET AL), 3 May 1994 (03.05.94), abstract --	1-15
A	EP 0736994 A2 (ADVANCED MICRO DEVICES INC.), 9 October 1996 (09.10.96), abstract --	1-15



Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

20 November 2000

Date of mailing of the international search report

23 -11- 2000

Name and mailing address of the ISA/

Swedish Patent Office

Box 5055, S-102 42 STOCKHOLM

Facsimile No. + 46 8 666 02 86

Authorized officer

Stefan Hansson/JAN

Telephone No. + 46 8 782 25 00

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/FI 00/00687

WO	0024183	A1	27/04/00	AU	1101499 A	08/05/00
<hr/>						
WO	9726749	A1	24/07/97	AU	708959 B	19/08/99
				AU	1362397 A	11/08/97
				CA	2167215 A	16/07/97
				CA	2218231 A,C	24/07/97
				EP	0875110 A	04/11/98
				JP	11506292 T	02/06/99
				US	5809128 A	15/09/98
<hr/>						
US	5309512	A	03/05/94	NONE		
<hr/>						
EP	0736994	A2	09/10/96	JP	8321881 A	03/12/96
				US	5572587 A	05/11/96
<hr/>						

# RECORD COPY

1/4

## PCT REQUEST

2990601PC/ko

Original (for SUBMISSION) - printed on 11.08.2000 09:11:18 AM

0	For receiving Office use only	
0-1	International Application No.	PCT/FI 0 0 / 0 0 6 8 7
0-2	International Filing Date	1 1 AUG 2000 ( 1 1 -08- 2000 )
0-3	Name of receiving Office and "PCT International Application"	The Finnish Patent Office PCT International Application
0-4	Form - PCT/RO/101 PCT Request	
0-4-1	Prepared using	PCT-EASY Version 2.91 (updated 01.07.2000)
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	National Board of Patents and Registration (Finland) (RO/FI)
0-7	Applicant's or agent's file reference	2990601PC/ko
I	Title of invention	METHOD FOR HANDLING A CALL
II	Applicant	
II-1	This person is:	applicant only
II-2	Applicant for	all designated States except US
II-4	Name	NOKIA NETWORKS OY
II-5	Address:	Keilalahdentie 4 FIN-02150 Espoo Finland
II-6	State of nationality	FI
II-7	State of residence	FI
III-1	Applicant and/or inventor	
III-1-1	This person is:	applicant and inventor
III-1-2	Applicant for	US only
III-1-4	Name (LAST, First)	USKELA, Sami
III-1-5	Address:	Siltasaarenkatu 26 A 1 FIN-00530 Helsinki Finland
III-1-6	State of nationality	FI
III-1-7	State of residence	FI

## PCT REQUEST

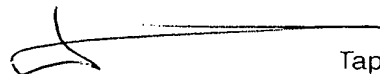
Original (for SUBMISSION) - printed on 11.08.2000 09:11:18 AM

IV-1	Agent or common representative; or address for correspondence The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	agent
IV-1-1	Name	KOLSTER OY AB
IV-1-2	Address:	Iso Roobertinkatu 23 P.O.Box 148 FIN-00121 Helsinki Finland
IV-1-3	Telephone No.	358 9 618 821
IV-1-4	Facsimile No.	+358 9 602 244
V	Designation of States	
V-1	Regional Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AP: GH GM KE LS MW MZ SD SL SZ TZ UG ZW and any other State which is a Contracting State of the Harare Protocol and of the PCT EA: AM AZ BY KG KZ MD RU TJ TM and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT EP: AT BE CH&LI CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE and any other State which is a Contracting State of the European Patent Convention and of the PCT OA: BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG and any other State which is a member State of OAPI and a Contracting State of the PCT
V-2	National Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AE AG AL AM AT (patent and utility model) AU AZ BA BB BG BR BY BZ CA CH&LI CN CR CU CZ (patent and utility model) DE (patent and utility model) DK (patent and utility model) DM DZ EE (patent and utility model) ES FI (patent and utility model) GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR (patent and utility model) KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK (patent and utility model) SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

## PCT REQUEST

2990601PC/ko

Original (for SUBMISSION) - printed on 11.08.2000 09:11:18 AM

V-5	<b>Precautionary Designation Statement</b> In addition to the designations made under items V-1, V-2 and V-3, the applicant also makes under Rule 4.9(b) all designations which would be permitted under the PCT except any designation(s) of the State(s) indicated under item V-6 below. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit.	
V-6	<b>Exclusion(s) from precautionary designations</b>	NONE
VI-1	<b>Priority claim of earlier national application</b>	
VI-1-1	Filing date	12 August 1999 (12.08.1999)
VI-1-2	Number	19991715
VI-1-3	Country	FI
VI-2	<b>Priority document request</b> The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s):	VI-1
VII-1	<b>International Searching Authority Chosen</b>	Swedish Patent Office (ISA/SE)
VIII	<b>Check list</b>	number of sheets      electronic file(s) attached
VIII-1	Request	4      -
VIII-2	Description	10      -
VIII-3	Claims	3      -
VIII-4	Abstract	1      2990601pc.txt
VIII-5	Drawings	3      -
VIII-7	TOTAL	21
	<b>Accompanying items</b>	paper document(s) attached      electronic file(s) attached
VIII-8	Fee calculation sheet	✓      -
VIII-10	Copy of general power of attorney	✓      -
VIII-16	PCT-EASY diskette	-      diskette
VIII-18	Figure of the drawings which should accompany the abstract	1
VIII-19	Language of filing of the international application	English
IX-1	<b>Signature of applicant or agent</b>	
IX-1-1	Name	KOLSTER OY AB      Tapio Valkeiskangas

## FOR RECEIVING OFFICE USE ONLY

10-1	Date of actual receipt of the purported international application	11 AUG 2000      (11-08-2000)
10-2	<b>Drawings:</b>	
10-2-1	Received	
10-2-2	Not received	

**PCT REQUEST**

Original (for SUBMISSION) - printed on 11.08.2000 09:11:18 AM

10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/SE
10-6	Transmittal of search copy delayed until search fee is paid	

**FOR INTERNATIONAL BUREAU USE ONLY**

11-1	Date of receipt of the record copy by the International Bureau	
------	--	--



REPLACED BY  
ART 34 ANNEX

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 29 NOV 2001	
WIPO	PCT

14

Applicant's or agent's file reference 2990601PC/nu	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FI00/00687	International filing date (day/month/year) 11.08.2000	Priority date (day/month/year) 12.08.1999
International Patent Classification (IPC) or national classification and IPC7 H04Q 7/38		
Applicant Nokia Networks Oy et al		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>3</u> sheets.</p>	
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input checked="" type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input checked="" type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>	

Date of submission of the demand  07.03.2001	Date of completion of this report  19.11.2001
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer  Stefan Hansson/js Telephone No. 08-782 25 00

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI00/00687

**I. Basis of the report****1. With regard to the elements of the international application:\***

- ☐ the international application as originally filed
- ☒ the description:  
pages 1-10 , as originally filed  
pages \_\_\_\_\_ , filed with the demand  
pages \_\_\_\_\_ , filed with the letter of \_\_\_\_\_
- ☒ the claims:  
pages \_\_\_\_\_ , as originally filed  
pages \_\_\_\_\_ , as amended (together with any statement) under article 19  
pages \_\_\_\_\_ , filed with the demand  
pages 11-13 , filed with the letter of 23.08.2001
- ☒ the drawings:  
pages 1-3 , as originally filed  
pages \_\_\_\_\_ , filed with the demand  
pages \_\_\_\_\_ , filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_ , as originally filed  
pages \_\_\_\_\_ , filed with the demand  
pages \_\_\_\_\_ , filed with the letter of \_\_\_\_\_

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

**4. ☐ The amendments have resulted in the cancellation of:**

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheet/fig \_\_\_\_\_

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI00/00687

II. Priority

1. ☐ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:  
☐ copy of the earlier application whose priority has been claimed (Rule 66.7(a)).  
☐ translation of the earlier application whose priority has been claimed (Rule 66.7(b)).
2. ☐ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rule 64.1).

Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

The priority is considered valid. Consequently, document  
WO 0024183 is of no relevance.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI00/00687

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	<u>1-12</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-12</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-12</u>	YES
	Claims		NO

**2. Citations and explanations (Rule 70.7)**The claimed invention

The claimed invention relates to a method of handling a call made by a subscriber A using a subscriber terminal, which comprises a telecommunications part and an AV part for displaying audio and/or visual information to a subscriber B when subscriber B is unable to answer.

Th claims have been amended.

The following documents have been cited in the International Search Report

D1: WO 0024183 A1

D2: WO 9726749 A1

D3: US 5309512 A

D4: EP 736994 A2

D2 relates to a method of providing voice call notification and control messaging over a data path. The method involves using a telephone link to connect a computer to a data communications service (DCS). A unique data network address is received from the DCS and a data path over a data network to a subscriber proxy is established. The data path is used to provide the proxy with the subscriber dial number and the unique data network address. Preferably a call-waiting message is received on the computer corresponding to a telephone call to the subscriber dial number. The call-waiting message is processed to produce an output perceptible by a person. The method of D2 provides user with real time visual or audio indication of voice call when user connected to data communication service.

However, D1 fails to disclose how the A subscriber is given the opportunity to be connected to one of the alternative AV sources while he is waiting in case the B subscriber is unable to answer the call.

.../...

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI00/00687

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Box V

D3 and D4 merely disclose the state of the art and are not commented on further.

Consequently, the claimed invention is considered to be novel, to involve an inventive step and to have industrial applicability.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI00/00687

## VI. Certain documents cited

### 1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
WO 0024183	27.04.2000	14.01.1997	15.01.1996 01.11.1996

### 2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)

## CLAIMS

(Amended on August 22, 2001)

1. A method for handling a call made by subscriber A using a subscriber terminal (MSA, A), which comprises a telecommunications part (5) and an AV part (7) for displaying audio and/or visual information, to a subscriber terminal (MSB, B) of subscriber B when subscriber B is unable to answer, in which method the terminal (MSA, A) of subscriber A, or at least its AV part (7), is operationally connected to an audiovisual source (3, 3') for the time subscriber A waits for subscriber B to answer or to become available, after which the call is connected between subscribers A and B,

**characterized** in that the method comprises the steps of

providing said subscriber terminal of the subscriber A with at least one AV source (3');

offering a plural number of alternative AV sources (3, 3') to subscriber A;

receiving information about the AV source (3, 3') chosen by subscriber A; and

connecting the terminal (MSA, A) used by subscriber A, or at least its AV part (7), to the AV source (3, 3') chosen by subscriber A.

2. A method according to claim 1, **characterized** in that information about the AV source (3, 3') chosen by subscriber A is stored into a memory means prior to the call, and subscriber A's terminal (MSA, A), or at least its AV part (7), is connected to the AV source (3, 3') indicated by the subscriber-specific information stored in the memory means.

3. A method according to any one claims 1 to 2, **characterized** in that at least the receiving step is carried out after it has been found out that subscriber B is unable to answer.

4. A telephone system comprising at least a terminal (MSA, A) used by subscriber A, a terminal (MSB, B) used by subscriber B, a switching centre (MSCA, MSCB, 1, MSC) for setting up a call between subscribers A and B, and connecting means (SCF, SRF, 2, SCN) for connecting the subscriber A's terminal (MSA, A) to an AV source (3) when subscriber B is unable to answer,

**characterized** in that the system comprises a plural number of alternative audiovisual sources (3) of which at least one is arranged in said terminal used by subscriber A, and that the connecting means (SCF, SRF, 2, SCN) are arranged to connect the terminal (MSA, A) of subscriber A to the AV source (3) chosen by subscriber A when subscriber B is unable to answer.

5. A telephone system according to claim 4, **characterized** in that it comprises a mobile communications system.

6. A telephone system according to claim 4 or 5, **characterized** in that the telephone system comprises at least one subscriber register (HLR, VLR1, VLR2, VLR) having a data transmission connection to a mobile services switching centre (MSCA, MSCB), subscriber information of subscriber terminals (MSA, MSB) within the mobile communications system being maintained in the subscriber register, and connecting means comprising a specialised resource function (SRF) and a service control function (SCF, SCN) which read the subscriber information from the subscriber register (HLR, VLR1, VLR2, VLR) and connect subscriber A's terminal (MSA) to the AV source (3) chosen by subscriber A on the basis of the information read.

7. A telephone system according to claim 4 or 5, **characterized** in that the connecting means, which comprise a specialised resource function (SRF) and a service control function (SCF), inform subscriber A about the available AV sources (3), receive the choice made by subscriber A and connect subscriber A's terminal (MSA) to the AV source (3) corresponding to the choice.

8. A telephone system according to claim 4, **characterized** in that it comprises a public switched telephone network.

9. A telephone system according to any one of claims 4 to 7, **characterized** in that it comprises a private branch exchange (4) to which a plural number of audiovisual sources (3) and means (2) are connected to transmit information to subscriber A about the available AV sources (3), to



receive the choice made by subscriber A and to connect subscriber terminal A (A, MSA) to the AV source (3).

10. A telephone apparatus comprising a telecommunications part (5), an AV part (7) and a user interface (8), **characterized** in that the telephone apparatus also comprises an audiovisual source (3') and connecting means (2') for connecting the AV part (7) to the AV source (3') in response to control signals relayed from other parts of the telephone system to indicate that subscriber B is unable to answer.

11. A telephone apparatus according to claim 10, **characterized** in that the AV source (3') also comprises a memory (M) into which audio data has been stored, and an audio generator (G) for generating audio signals from the audio data and for feeding the signals into the AV part (7).

12. A telephone apparatus according to claim 10, **characterized** in that the AV source (3') is a radio.

04.12.2000

RECEIVED

05-12-2000

KOLSTER OY AB

Kolster Oy Ab

Iso Roobertinkatu 23

00120 Helsinki

Patenttihakemus nro: 19991715  
Luokka: H04M X / JOR  
Hakija: Nokia Networks Oy  
Asiamies: Kolster Oy Ab  
Asiamiehen viite: 2990601FI

Määräpäivä: 04.06.2001

Patenttihakemuksen numero ja luokka on mainittava kirjelmässänne PRH:lle

Hakemuksen mukainen keksintö kohdistuu menetelmään, puhelinjärjestelmään ja puhelinlaitteeseen. Keksinnön mukaisesti A-tilaaja voidaan kytkeä valitsemaansa AV-lähteeseen B-tilaajan ollessa estynyt vastaamasta.

Suoritetussa uutuustutkimuksessa tuli esiin seuraavat patenttoinnin kannalta merkittävät julkaisut:

EP0424015 H04Q3/66 24.04.1991. Julkaisu esittää mm. miten soittaja voi jonotustilanteessa valita kuuntelemaansa musiikkilähteen, sisältäen musiikkityypin. Musiikkityyppi voi olla soittajan ennalta valitsema ja valinta voidaan tallettaa vastaava tilannetta varten.

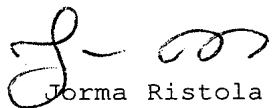
US4577067 H04M11/00 18.03.1986. Julkaisu esittää mm. järjestelmän, jonka avulla soittaja voi odotustilanteessa valita kuuntelemaansa informaation.

Hakemuksen mukaisten palvelujen tarjonta matkapuhelinjärjestelmässä, kiinteässä puhelinverkossa sekä älyverkon palveluna on ennestään tunnettu. AV-lähteiden sijoittelu eri järjestelmäosien yhteyteen (PBX, MSC) tai toteutus itsenäisenä laitteena (IP) sekä tarvittavat menetelmät ovat alan ammattimiehelle tunnettu asia. Edellä esitetyn perusteella hakemuksen itsenäiset vaatimukset 1 ja 7 eivät eroa olennaisesti tunnetusta tekniikasta, eivätkä siten ole hyväksyttävissä.

Huomautettakoon, että itsenäinen patenttivaatimus tulee laatia siten, että johdannossa esitetään keksinnöstä ne seikat, jotka edustavat tekniikan tasoa, ja tunnusmerkkiosassa määritellään se, mikä keksinnössä on uutta ja omalaatuista (patenttiasetus 14§, ja patenttimääräys 10§). Samoin huomautettakoon, että vaatimuksesta tulee (ilman viittausmerkkejä) selvästi käydä ilmi mille suojaa haetaan (PM 20§). Lisäksi huomautettakoon, että hakemuksen tiivistelmä ei kata mm. patenttivaatimuksia 1 ja 13.

Mikäli hakija haluaa jatkaa hakemuksen käsittelyä huomautettakoon, että patenttivaatimuksia muokattaessa on pidettävä mielessä, että niitä ei saa muuttaa siten, että ne tulevat sisältämään sellaista, mikä ei ilmene hakemuksen perusasiakirjasta. Jos patenttivaatimuksia muutetaan siten, että ne tulevat sisältämään uusia määritteitä, hakijan tulee samanaikaisesti ilmoittaa, mistä vastaavat seikat ovat löydettävissä perusasiakirjasta (PA 19§).  
Liitteet: EP0424015, US4577067, tutkimusraportti

Tutkijainsinööri  
Puhelin:

  
Jorma Ristola  
(09) 6939 5324

Lausumanne huomautusten johdosta on annettava viimeistään yllämainittuna määräpäivänä. Jollette ole antanut lausumaanne virastoon viimeistään mainittuna määräpäivänä tai ryhtynyt toimenpiteisiin tässä välipäätöksessä esitettyjen puutteellisuuksien korjaamiseksi, jätetään hakemus sillensä (patenttilain 15 §). Sillensä jätetty hakemus otetaan uudelleen käsiteltäväksi, jos Te neljän kuukauden kuluessa määräpäivästä annatte lausumanne tai ryhdytte toimenpiteisiin esitettyjen puutteellisuuksien korjaamiseksi ja samassa ajassa suoritate vahvistetun maksun, 320 mk hakemuksen ottamisesta uudelleen käsiteltäväksi. Jos lausumanne on annettu virastoon oikeassa ajassa, mutta esitettyjä puutteellisuuksia ei ole siten korjattu, että hakemus voitaisiin hyväksyä, se hylätään, mikäli virastolla ei ole aihetta antaa Teille uutta välipäätöstä (patenttilain 16 §). Uusi keksinnön selitys, siihen tehdyt lisäykset ja uudet patenttivaatimukset on aina jätettävä kahtena kappaleena ja tällöin on otettava huomioon patenttiasetuksen 19 §.



**PATENTTI- JA REKISTERIHALLITUS**

Patentti- ja innovaatiolinja

**TUTKIMUSRAPORTTI**

<b>PATENTTIHAKEMUS NRO</b> 19991715	<b>LUOKITUS</b> (Int. Cl. <sup>7</sup> ) H04M3/42, H04Q7/32
--	---

<b>TUTKITTU AINEISTO</b>
Patenttijulkaisukokoelma (FI, SE, NO, DK, DE, CH, EP, WO, GB, US), tutkitut luokat
Tiedonhaut ja muu aineisto EPODOC, PAJ

<b>VIITEJULKAISUT</b>		
<b>Kategoria*)</b>	<b>Julkaisun tunnistetiedot</b>	<b>Koskee vaatimuksia</b>
X	EP A 0424015 H04Q3/66 24.04.1991 AT&T Company, mm. palsta 3 rivit 50-58	1,5-6
X	US A 4577067 H04M11/00 18.03.1986 Levy A., Paul D.J., mm. palsta 2 rivit 33-54	1, 6
*) X Patentoitavuuden kannalta merkittävä julkaisu yksinään tarkasteltuna Y Patentoitavuuden kannalta merkittävä julkaisu, kun otetaan huomioon tämä. Ja yksi tai useampi samaan kategoriaan kuuluva julkaisu A Yleistä tekniikan tasoa edustava julkaisu, ei kuitenkaan patentoitavuuden este		
<b>Päiväys</b> 01.12.00	<b>Tutkija</b> Jorma Ristola	

(19) World Intellectual Property Organization  
International Bureau



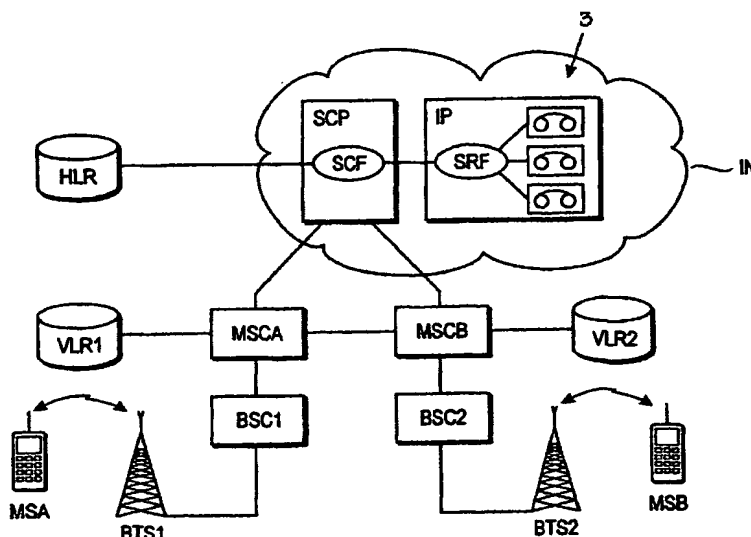
(43) International Publication Date  
22 February 2001 (22.02.2001)

PCT

(10) International Publication Number  
**WO 01/13665 A1**

- (51) International Patent Classification<sup>7</sup>: **H04Q 7/38**
- (21) International Application Number: **PCT/FI00/00687**
- (22) International Filing Date: **11 August 2000 (11.08.2000)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:  
19991715 ✓ 12 August 1999 (12.08.1999) **FI**
- (71) Applicant (for all designated States except US): **NOKIA NETWORKS OY [FI/FI]; Keilalahdentie 4, FIN-02150 Espoo (FI).**
- (81) Designated States (national): **AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.**
- (84) Designated States (regional): **ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).**
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **USKELA, Sami [FI/FI]; Siltasaarenkatu 26 A 1, FIN-00530 Helsinki (FI).**
- (74) Agent: **KOLSTER OY AB; Iso Roobertinkatu 23, P.O. Box 148, FIN-00121 Helsinki (FI).**
- Published:  
— With international search report.
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **METHOD FOR HANDLING A CALL**



(57) Abstract: The present invention relates to a telephone system comprising at least a terminal (MSA) used by subscriber A, a terminal (MSB) used by subscriber B, a switching centre (MSCA, MSCB) for setting up a call between subscribers A and B, and connecting means (SCF, SRF) for connecting subscriber A's terminal (MSA) to an audiovisual source (3) when subscriber B is unable to answer. To offer a waiting subscriber a more user-friendly service than before, the system includes a plural number of alternative AV sources (3), the connecting means (SCF, SRF) being arranged to connect subscriber A's terminal (MSA) to the AV source (3) chosen by subscriber A when subscriber B is unable to answer.



**WO 01/13665 A1**

## METHOD FOR HANDLING A CALL

### BACKGROUND OF THE INVENTION

The invention relates to a method for handling a call made by subscriber A using a subscriber terminal, which comprises a telecommunications part and an AV part for displaying audio and/or visual information, to a subscriber terminal of subscriber B when subscriber B is unable to answer. In the method, the terminal of subscriber A, or at least its AV part, is operationally connected to an audiovisual source for the time subscriber A waits for subscriber B to answer or to become available. When B answers or becomes available, the call is connected between subscribers A and B. The invention also relates to a telephone system comprising at least a terminal used by subscriber A, a terminal used by subscriber B, a switching centre for setting up a call between subscribers A and B, and connecting means for connecting subscriber A's terminal of to an audiovisual source when subscriber B is unable to answer. The invention further relates to a telephone apparatus comprising a telecommunications part, an AV part and a user interface.

The method and the telephone system associated with it relate to offering call waiting services when subscriber A wishes to wait for subscriber B to answer or to become available, when B is busy or unable to answer. In practice, when subscriber B is unable to answer, the call made by subscriber A may be connected to an exchange where an operator asks whether subscriber A wishes to wait, or subscriber B may have a call waiting supplementary service, in which case, if A wishes to be put on hold, B will receive a call waiting tone indicating that a call is waiting.

Prior art mobile communications systems, such as the GSM system (Global System for Mobile Communications), comprise a Call Waiting Supplementary Service which indicates to subscriber B that a call is waiting, thereby allowing subscriber B to decide whether to accept, reject or ignore the waiting call. In addition, numerous private branch exchanges comprise a waiting functionality, which means that while waiting for the other party to answer, subscriber A may listen to music recorded on tape. Current solutions therefore only have two options to offer to subscriber A: either to drop the call or to hold and listen to a pre-selected audio source. In the latter case, subscriber A has to listen to music selected by subscriber B or the operator,

for example. From subscriber A's point of view, the prior art solution is not particularly user-friendly.

## BRIEF DESCRIPTION OF THE INVENTION

An object of the present invention is to solve the above described  
5 problem and to provide a solution offering increased user-friendliness and a wider range of options to subscriber A holding the line. This is achieved with a method of the invention characterized by offering a plural number of alternative AV sources to subscriber A, receiving information about the AV  
10 source selected by subscriber A, and connecting the terminal used by subscriber A, or at least its AV part, to the audiovisual source chosen by subscriber A. AV in this context refers to audio or visual information or a combination thereof.

The invention also relates to a telephone system where the method of the invention can be applied. The telephone system of the invention is  
15 characterized in that the system comprises a plural number of alternative AV sources, and that connecting means are arranged to connect the terminal of subscriber A to an audiovisual source chosen by subscriber A when subscriber B is unable to answer.

The invention further relates to a telephone apparatus with which  
20 the method of the invention can be utilized and which is suited to be used in the telephone system of the invention. The telephone apparatus comprises a telecommunications part, which the telephone apparatus uses for communicating with the network, and an audiovisual part which is used for relaying audio and/or visual information to the subscriber. The telephone  
25 apparatus of the invention is characterized in that the telephone apparatus also comprises an audiovisual source and connecting means for connecting the AV part to the AV source in response to control signals relayed from other parts of the telephone system to indicate that subscriber B is unable to answer.

30 The basic idea of the invention is that it allows subscriber-specific wishes to be taken into account by giving the subscriber the possibility to choose the AV source he/she wishes to listen to and/or watch while waiting for the other party to answer or to become available. Hence the most significant advantage of the invention is that while waiting, the subscriber listens to and/or  
35 watches an audiovisual source that he/she finds pleasing and/or useful,

instead of being dependent on call waiting tone services selected in advance by someone else.

5 In a preferred embodiment of the method of the invention, subscriber-specific information about the AV sources selected by each subscriber is stored in advance into a memory means. When the called party is unable to answer, the connecting means connect the subscriber to an AV source corresponding to the subscriber information stored. The advantage of this is that the subscriber does not need to re-select the desired AV source every time.

10 In another embodiment of the method of the invention, when the called party is unable to answer, the subscriber receives information about the AV sources that are available. The subscriber then selects an AV source, the choice is received, and the subscriber is connected to an AV source corresponding to his/her choice. This allows the subscriber to always choose  
15 the AV source that suits or pleases him/her best. The available AV sources may have been determined by subscriber A, the operator or another service supplier, or by subscriber B. The choice can be made using for example WAP technology (Wireless Application Protocol), in which case the subscriber selects the AV source from a menu sent to him/her, or IVR technology  
20 (Interactive Voice Response), in which case the subscriber enters his/her choice using the keys of the terminal according to the instructions and alternatives given as audio messages.

The telephone system of the invention can be implemented either in a mobile communications system or in a public telephone network. In a mobile  
25 communications system, the data about the AV sources selected by the subscribers may be stored into a home register. The data is then transferred together with other subscriber data as the subscriber moves in the system. In this case the connecting means that connect the subscriber to the selected AV source may be parts of an intelligent network, such as a Specialised Resource  
30 Function SRF or a Service Control Function SCF which read the data from the subscriber register and perform the connection in accordance with the data read.

A plural number of alternative AV sources may also be arranged at a private branch exchange, the connection to the selected AV source then  
35 taking place at the exchange when the party connected to the exchange is



unable to answer. This solution is easy to implement, because the changes to be made to the system only affect the exchange.

5 A telephone apparatus of a preferred embodiment of the invention is provided with an AV source that may include music stored into a memory, other stored audio and/or video material, or a radio. With this type of telephone apparatus, the information from the AV source is not transmitted to the subscriber over telephone connections, whereby the use of telephone links, and radio resources in particular, is reduced. The connection of the AV source to the AV part of the telephone apparatus is controlled by signals arriving from  
10 other parts of the system, such as from the switching centre serving subscriber B, from an exchange or from subscriber B's terminal, which first indicate that subscriber B is unable to answer and later inform when subscriber B becomes available.

15 The preferred embodiments of the method, telephone system and telephone apparatus of the invention are disclosed in the accompanying dependent claims.

#### BRIEF DESCRIPTION OF THE DRAWINGS

In the following the invention will be described in greater detail in with reference to the accompanying drawings, in which

20 Figure 1 is a block diagram illustrating a mobile communications system of the invention implemented as a GSM mobile communications system;

Figure 2 is a flow diagram illustrating a method of the invention in which subscriber A has selected an audiovisual source prior to making a call;

25 Figure 3 is a flow diagram illustrating a method of the invention in which subscriber A selects an AV source after subscriber B is found to be unable to answer;

Figure 4 is a signalling diagram illustrating the method of the invention applied to the mobile communications system of Figure 1;

30 Figure 5 is a block diagram illustrating a telephone system of the invention comprising a private branch exchange;

Figure 6 is a block diagram illustrating a telephone apparatus of the invention; and

Figure 7 is a block diagram illustrating a mobile communications system of the invention implemented as a third-generation mobile communications system.

#### DETAILED DESCRIPTION OF THE INVENTION

5 Figure 1 is a block diagram illustrating a mobile communications system of the invention, which in this example is a cellular GSM system.

The mobile communications system shown in Figure 1 comprises two Mobile Switching Centres MSCA and MSCB which both switch calls between Mobile Stations MSA and MSB located within their coverage area through Base Station Controllers BSC1 and BSC 2 and Base Transceiver Stations BTS1 and BTS2. In this example, MSA is the subscriber A's terminal, i.e. the calling party, and MSB is subscriber B's terminal, i.e. the called party. The mobile switching centres MSCA and MSCB both comprise a Visitor Location Register, VLR1 and VLR2, respectively, where information about subscribers presently located in the areas of the switching centres is maintained. The mobile communications system further comprises a Home Location Register HLR where information about the mobile subscribers registered into the network is maintained. The described mobile communications system comprises a plural number of audiovisual sources 3 which in this example only include audio sources. According to the idea of the invention, the information about the AV sources 3 selected by subscriber A may be stored in the home location register HLR from where they are copied, together with other subscriber information, into the visitor location registers VLR when the subscriber moves in the network. The described mobile communications system further includes an Intelligent Network part IN which comprises a Specialised Resource Function SRF and a Service Control Function SCF. The network element implementing the latter function is called a Service Control Point SCP. The service can be supplied for example in CAMEL service environment (Common Applications for Mobile Enhanced Logic). The specialised resource function SRF can be implemented using an element known as an Intelligent Peripheral IP. The above-mentioned intelligent network parts read the information indicating subscriber A's choice of AV source from the subscriber register HLR or VLR1, for example, and connect subscriber A's terminal MSA to the desired audio source 3. The audio source alternatives may include recorded music or announcements, such as

10  
15  
20  
25  
30  
35

news reports and weather forecasts, commercials, or the radio. Network operators may also use a particular type of music or other audio material to build complete packages around a theme. Other audio source types are also possible. The audio sources may be placed for example in an IP element.

5           Figure 2 is a flow diagram illustrating the method of the invention in which subscriber A has selected the AV source in advance, prior to making the call. In step 2A subscriber A calls subscriber B's telephone number. In step 2B is checked whether subscriber B is unable to answer and, if so, the routine proceeds to step 2C where the subscriber register is searched for information  
10   about an AV source chosen in advance by subscriber A. This information may be stored for example in the home location register, in which case it is relayed together with other subscriber information as the subscriber moves in the system. The recording may be carried out for example when the telephone connection is registered by the network operator, or later by the subscriber. In  
15   an intelligent network it may then be possible to select the AV source for example by calling a service number or by using WAP technology. In step 2D the terminal of subscriber A, or at least its AV part, is connected to an AV source corresponding to the information read from the register. Subscriber A listens to and/or watches the AV source until information arrives, in step 2E,  
20   from other parts of the system, such as the switching centre serving subscriber B, or directly from B's terminal, indicating that subscriber B has become available. In step 2F subscriber A is disconnected from the AV source and in step 2G a normal call connection is established between subscribers A and B. If in step 2B it is detected that subscriber B is not busy, then the routine  
25   proceeds from step 2B directly to step 2G.

          Figure 3 is a flow diagram illustrating the method of the invention when subscriber A selects the AV source after he/she has found out that subscriber B is unable to answer. Steps 3A and 3B correspond to steps 2A and 2B in Figure 2. If in step 3B it is found out that subscriber B is not busy,  
30   then the routine proceeds directly to step 3H, whereas if subscriber B is unable to answer, then the routine proceeds to step 3C where information about the available AV sources is transmitted to subscriber A. This information may be given for example as audio messages to which subscriber A responds by using the telephone keys according to the instructions he/she hears over  
35   the phone, or subscriber A may receive a menu from which he/she makes the choice. In step 3D the connecting means receive subscriber A's choice and in

step 3E they connect subscriber A's terminal, or at least its AV part, to the selected AV source. Subscriber A listens to and/or watches the AV source until in step 3F information arrives from other parts of the system indicating that subscriber B has become available. In step 3G subscriber A is  
5 disconnected from the AV source and in step 3H a normal call connection is set up between subscribers A and B.

Figure 4 is a signalling diagram illustrating the method of the invention when applied to the mobile communications system shown in Figure 1. In steps 4-1...4-3 subscriber A uses his/her terminal in an ordinary manner  
10 to call subscriber B's terminal. In step 4-4 information is transmitted from subscriber B's terminal to the mobile switching centre MSCB serving subscriber B to indicate that B is unable to answer. Next, in step 4-5, this information is transmitted further to the mobile switching centre MSCA serving subscriber A. In step 4-6 information is transmitted from the mobile switching  
15 centre MSCA to the service control function SCF to indicate that subscriber A is waiting. At the same time the service control function SCF is asked for further instructions. In response to the inquiry, the service control function SCF instructs the specialised resource function SRF in step 4-7 to connect the AV source corresponding to the subscriber information, i.e. the audio source in  
20 this case. At the same time, a message depicted as step 4-8 is transmitted from the service control function SCF to the mobile switching centre MSCA serving subscriber A to request a connection to be set up from subscriber A's terminal to the specialised resource function SRF. In step 4-9 subscriber A's terminal is connected to the specialised resource function SRF, and in step 4-  
25 10 a connection is set up for the sound from the audio source, after which subscriber A can listen to the audio source he/she has selected. In step 4-11 subscriber B is ready to answer, and information indicating this is first transmitted to the mobile switching centre MSCB serving subscriber B and further, in step 4-12, to the mobile switching centre MSCA serving subscriber  
30 A. The mobile switching centre MSCA then sends in step 4-13 information to the service control function SCF to indicate that subscriber B is ready to answer. In step 4-14 the service control function SCF instructs the mobile switching centre MSCA to set up the call between subscribers A and B. In steps 4-15...4-18 this call connection is set up as usually. In step 4-19 the  
35 connection from subscriber A to the specialised resource function SRF is

released, and in step 4-20 a normal call connection is set up between the terminals of subscriber A and subscriber B.

Figure 5 is a block diagram illustrating the telephone system of the invention comprising a private branch exchange 4. The described telephone system includes subscriber A's terminal A, or MSA, subscriber B's terminal B, a public network switching centre 1 and a fixed private branch exchange 4 provided with connecting means 2 for connecting alternative AV sources, which in this case are audio sources 3, to subscriber A's terminal A, or MSA. The private branch exchange is for example an exchange used by a company, or another group, which serves the company's extensions and communicates with the public telecommunication network. The private branch exchange may be either an automated exchange or a manual one. In the Figure the continuous line depicting telephone connections shows a case where terminal A of subscriber A is a subscriber terminal in the public telephone network, the broken line illustrating a case where subscriber A's terminal MSA is a mobile communications system terminal, in which case the call is not switched through the public network switching centre 1 but through the mobile switching centre MSCA, the base station controller BSC and the base station BTS. In both cases the alternative audio sources are connected to subscriber A's terminal A, or MSA, according to the same principles. When subscriber B is unable to answer, subscriber A can be asked whether he/she wishes to wait. The connecting means 2 can then transmit for example audio messages about the available audio sources to subscriber A, together with instructions on how to make a choice. Following the instructions, subscriber A can then select the desired audio source among the alternatives he/she has heard by using the telephone keys. The audio sources that may be used in this case include recorded music, various announcements and the radio.

Figure 6 illustrates a telephone apparatus of the invention. The described telephone apparatus is a mobile phone, although the telephone apparatus of the invention may also be one used in the fixed telephone network. In this example, the AV source of the telephone apparatus is an audio source, i.e. it only transmits audio information. The telephone apparatus shown in the Figure comprises a telecommunications part 5 which in turn comprises a radio part 6 provided with transmit and receive functions; an audio part 7 comprising a microphone and a loudspeaker; a user interface 8 comprising a display and a keypad; a controller 9; an audio source 3' and

connecting means 2' for connecting the audio source 3' to the audio part 7 under the control of the controller 9, until information is received via the radio part 6 that subscriber B is ready to answer. The audio source 3' also comprises a memory M for recording audio data, an audio generator G for  
5 generating audio signals from the audio data, and a logic circuit LOG for controlling these. The audio source is selected by applying the user interface, i.e. by using the telephone keys according to the instructions appearing on the display.

Figure 7 is a block diagram illustrating the telephone system of the  
10 invention implemented as a third-generation mobile communications system, which in this example is a UMTS (Universal Mobile Telecommunication System). It is to be understood that third-generation mobile communications system have not been fully standardized yet. The expressions and terms used should therefore be understood to be descriptive rather than limiting. For the  
15 sake of clarity, the Figure only shows subscriber terminal A together with the base station and the mobile switching centre serving the terminal, although the telephone system of the invention also comprises the subscriber terminal B.

The described UMTS mobile communications system comprises a mobile station MSA which functions as subscriber A's subscriber terminal and  
20 which has a radio connection to the base station BS and a data transmission connection further to a Radio Network Controller RNC. For circuit-switched connections, the radio network controller is connected to a Mobile Services Switching Centre MSC over an A interface, and for packet-switched services to a Serving GPRS Support Node SGSN, where GPRS stands for the General  
25 Packet Radio Service, over a Gb interface. The serving GPRS support node SGSN and the mobile services switching centre MSC may comprise separate UMTS elements. In the system, subscriber information is stored in the home location register HLR from where they are transferred, in connection with circuit-switched use, to the visitor location registers VLR of the mobile services  
30 switching centres MSC when the subscriber moves in the system. To interconnect the A and Gb interfaces of the GSM and GPRS systems, the Iu interface of the UMTS system may be provided with separate Interworking Units IWU. Information relating to the equipment is stored in an Equipment Identity Register EIR. To add and update subscriber-specific data, the system  
35 also comprises an Operation and Maintenance Section O&M with a Man-Machine Interface MMI. For creating additional services and for controlling

them, the system is also provided with a Service Control Node SCN which is an advanced version of the service control point used in intelligent networks. From the mobile services switching centre MSC there is a connection further to circuit-switched networks and from the serving GPRS support nodes SGSN to packet-switched networks. The system includes a plural number of alternative AV sources 3 which are physically located at the specialised resource function SRF where they are controlled by the service control node SCN. The alternatives that can be used as AV sources include recorded music or announcements, such as weather forecasts and news reports, or commercials, radio, moving or still video pictures.

It is to be understood that the above specification and the related drawings are only meant to illustrate the present invention. For example, information indicating that subscriber B has become available is not necessarily issued automatically, as in the above examples, but the waiting service used by subscriber A may include a step which is repeated at regular intervals to inquire the switching centre serving subscriber B whether B is still unable to answer. In this case the AV source remains connected until a response indicating that subscriber B is available is received to the inquiry. It will be apparent to those skilled in the art that many variations and modifications can be made to the invention without departing from the scope of protection of the invention disclosed in the attached claims.

## CLAIMS

1. A method for handling a call made by subscriber A using a subscriber terminal (MSA, A), which comprises a telecommunications part (5) and an AV part (7) for displaying audio and/or visual information, to a subscriber terminal (MSB, B) of subscriber B when subscriber B is unable to answer, in which method the terminal (MSA, A) of subscriber A, or at least its AV part (7), is operationally connected to an audiovisual source (3, 3') for the time subscriber A waits for subscriber B to answer or to become available, after which the call is connected between subscribers A and B, **characterized** in that the method comprises the steps of
- offering a plural number of alternative AV sources (3, 3') to subscriber A;
- receiving information about the AV source (3, 3') chosen by subscriber A; and
- connecting the terminal (MSA, A) used by subscriber A, or at least its AV part (7), to the AV source (3, 3') chosen by subscriber A.
2. A method according to claim 1, **characterized** in that the alternative AV sources (3) are placed outside the terminal.
3. A method according to claim 1, **characterized** in that the alternative AV sources (3') are placed into the terminal.
4. A method according to claim 1, **characterized** in that a first group (3) of the alternative AV sources is placed outside the terminal and a second group (3') into the terminal.
5. A method according to any one claims 1 to 4, **characterized** in that information about the AV source (3, 3') chosen by subscriber A is stored into a memory means prior to the call, and subscriber A's terminal (MSA, A), or at least its AV part (7), is connected to the AV source (3, 3') indicated by the subscriber-specific information stored in the memory means.
6. A method according to any one claims 1 to 5, **characterized** in that at least the receiving step is carried out after it has been found out that subscriber B is unable to answer.
7. A telephone system comprising at least a terminal (MSA, A) used by subscriber A, a terminal (MSB, B) used by subscriber B, a switching centre (MSCA, MSCB, 1, MSC) for setting up a call between subscribers A and B, and connecting means (SCF, SRF, 2, SCN) for connecting the subscriber A's



terminal (MSA, A) to an AV source (3) when subscriber B is unable to answer, **characterized** in that the system comprises a plural number of alternative audiovisual sources (3), and that the connecting means (SCF, SRF, 2, SCN) are arranged to connect the terminal (MSA, A) of subscriber A to the AV source (3) chosen by subscriber A when subscriber B is unable to answer.

8. A telephone system according to claim 7, **characterized** in that it comprises a mobile communications system.

9. A telephone system according to claim 7 or 8, **characterized** in that the telephone system comprises at least one subscriber register (HLR, VLR1, VLR2, VLR) having a data transmission connection to a mobile services switching centre (MSCA, MSCB), subscriber information of subscriber terminals (MSA, MSB) within the mobile communications system being maintained in the subscriber register, and connecting means comprising a specialised resource function (SRF) and a service control function (SCF, SCN) which read the subscriber information from the subscriber register (HLR, VLR1, VLR2, VLR) and connect subscriber A's terminal (MSA) to the AV source (3) chosen by subscriber A on the basis of the information read.

10. A telephone system according to claim 7 or 8, **characterized** in that the connecting means, which comprise a specialised resource function (SRF) and a service control function (SCF), inform subscriber A about the available AV sources (3), receive the choice made by subscriber A and connect subscriber A's terminal (MSA) to the AV source (3) corresponding to the choice.

11. A telephone system according to claim 7, **characterized** in that it comprises a public switched telephone network.

12. A telephone system according to any one of claims 7 to 10, **characterized** in that it comprises a private branch exchange (4) to which a plural number of audiovisual sources (3) and means (2) are connected to transmit information to subscriber A about the available AV sources (3), to receive the choice made by subscriber A and to connect subscriber terminal A (A, MSA) to the AV source (3).

13. A telephone apparatus comprising a telecommunications part (5), an AV part (7) and a user interface (8), **characterized** in that the telephone apparatus also comprises an audiovisual source (3') and connecting

13

means (2') for connecting the AV part (7) to the AV source (3') in response to control signals relayed from other parts of the telephone system to indicate that subscriber B is unable to answer.

14. A telephone apparatus according to claim 13,  
5 **characterized** in that the AV source (3') also comprises a memory (M) into which audio data has been stored, and an audio generator (G) for generating audio signals from the audio data and for feeding the signals into the AV part (7).

15. A telephone apparatus according to claim 13,  
10 **characterized** in that the AV source (3') is a radio.

Fig. 1

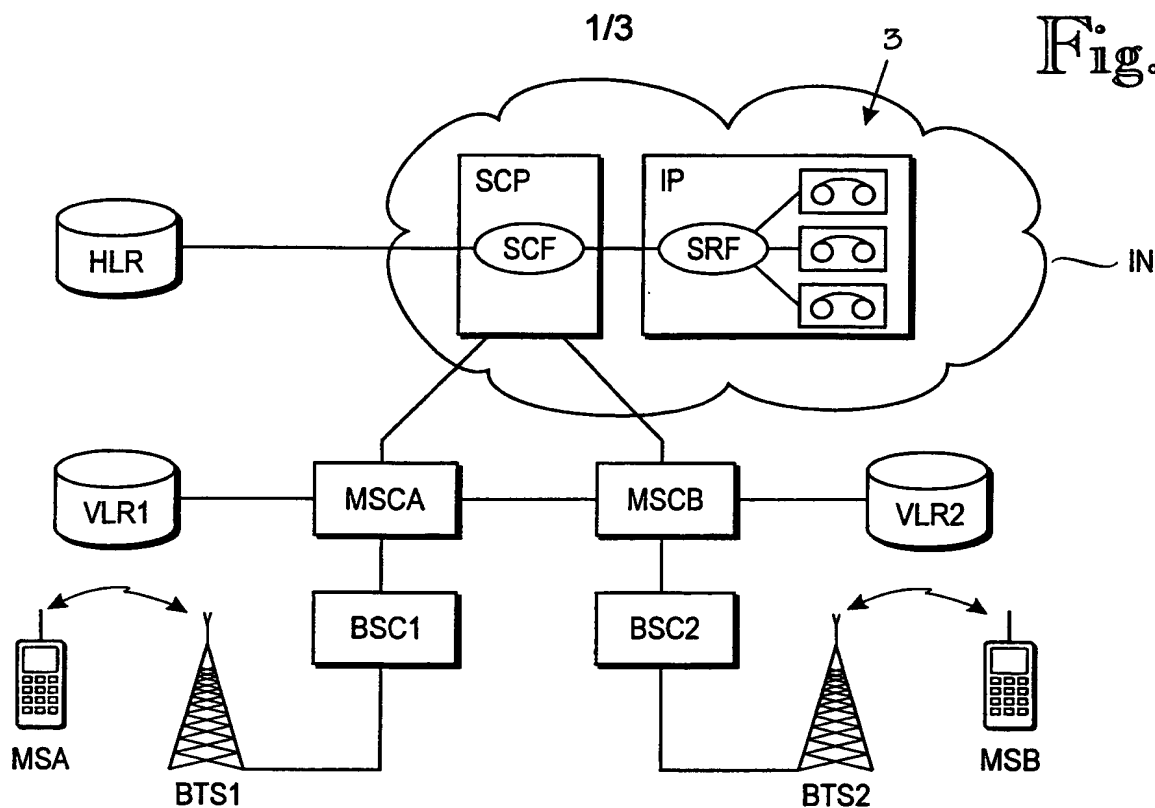


Fig. 5

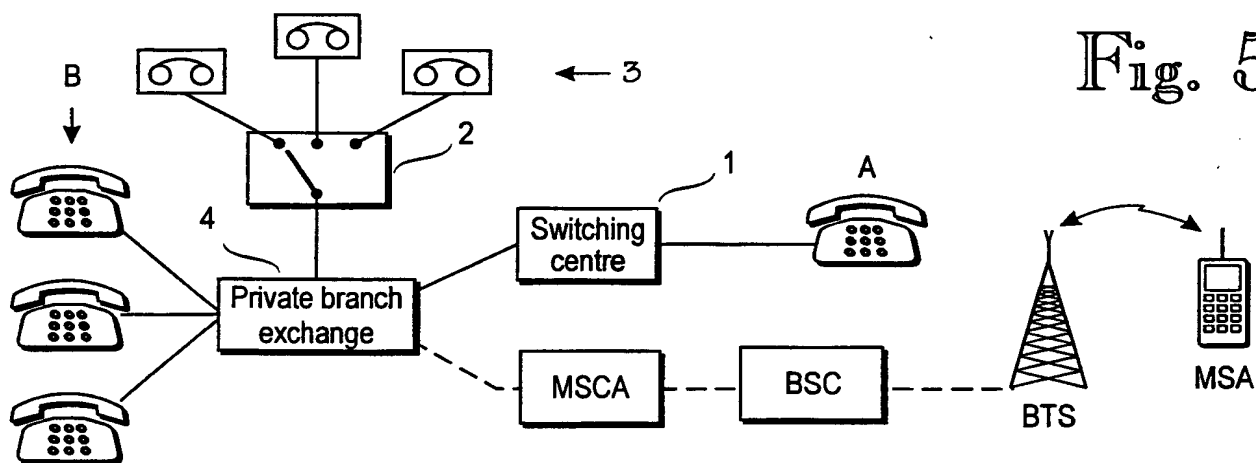
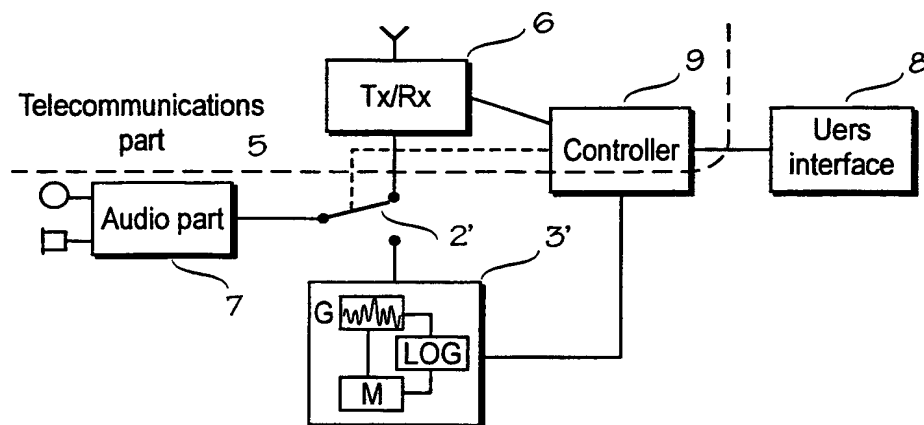


Fig. 6



2/3

Fig. 2

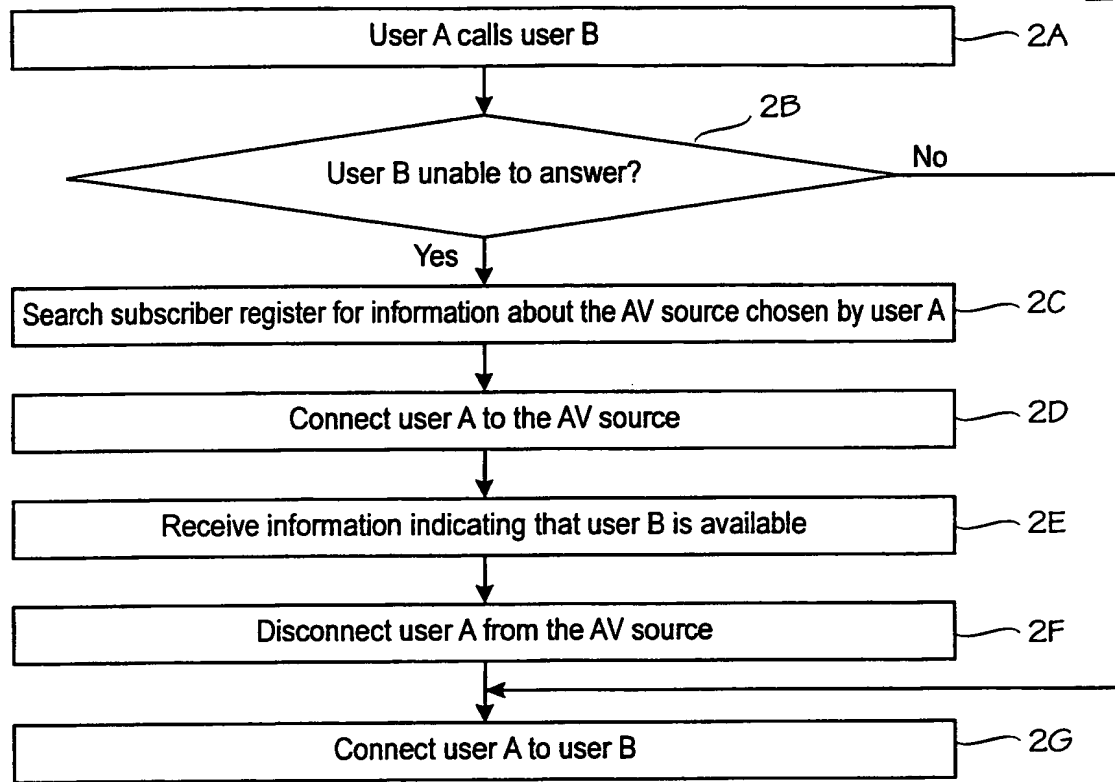
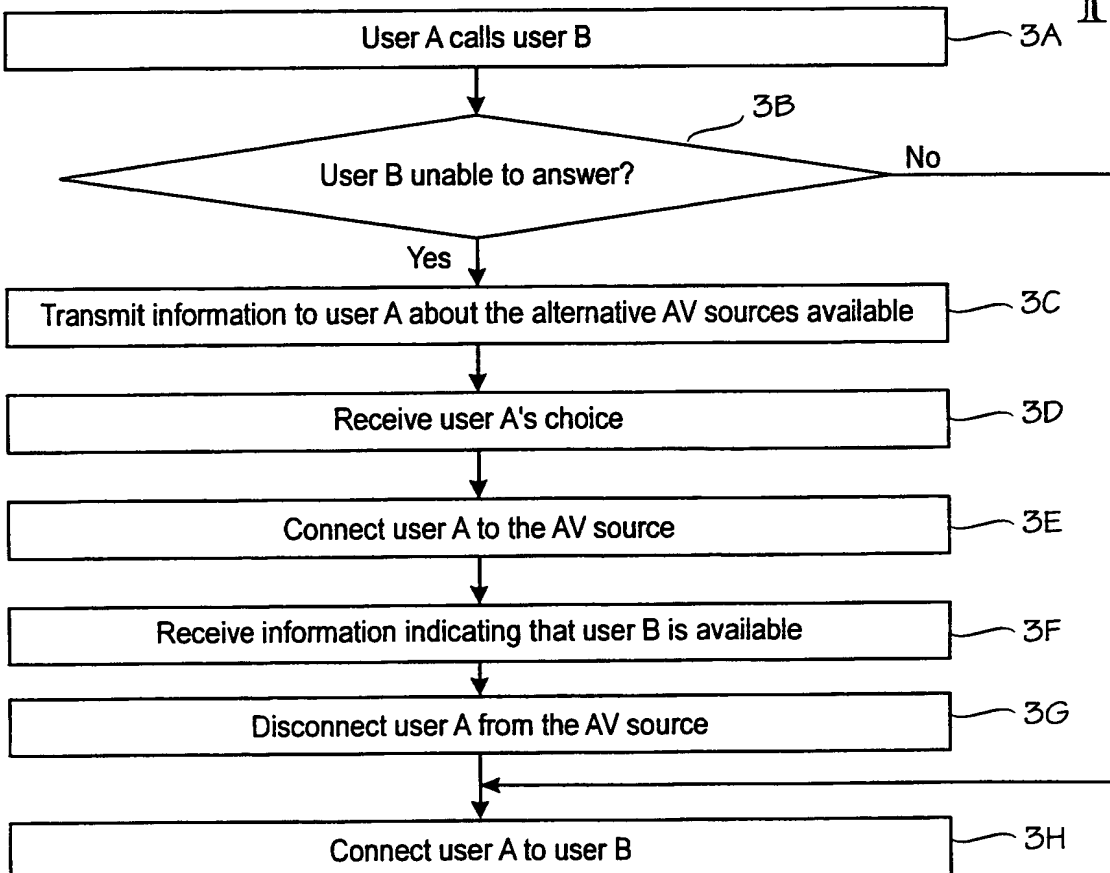


Fig. 3



3/3

Fig. 4

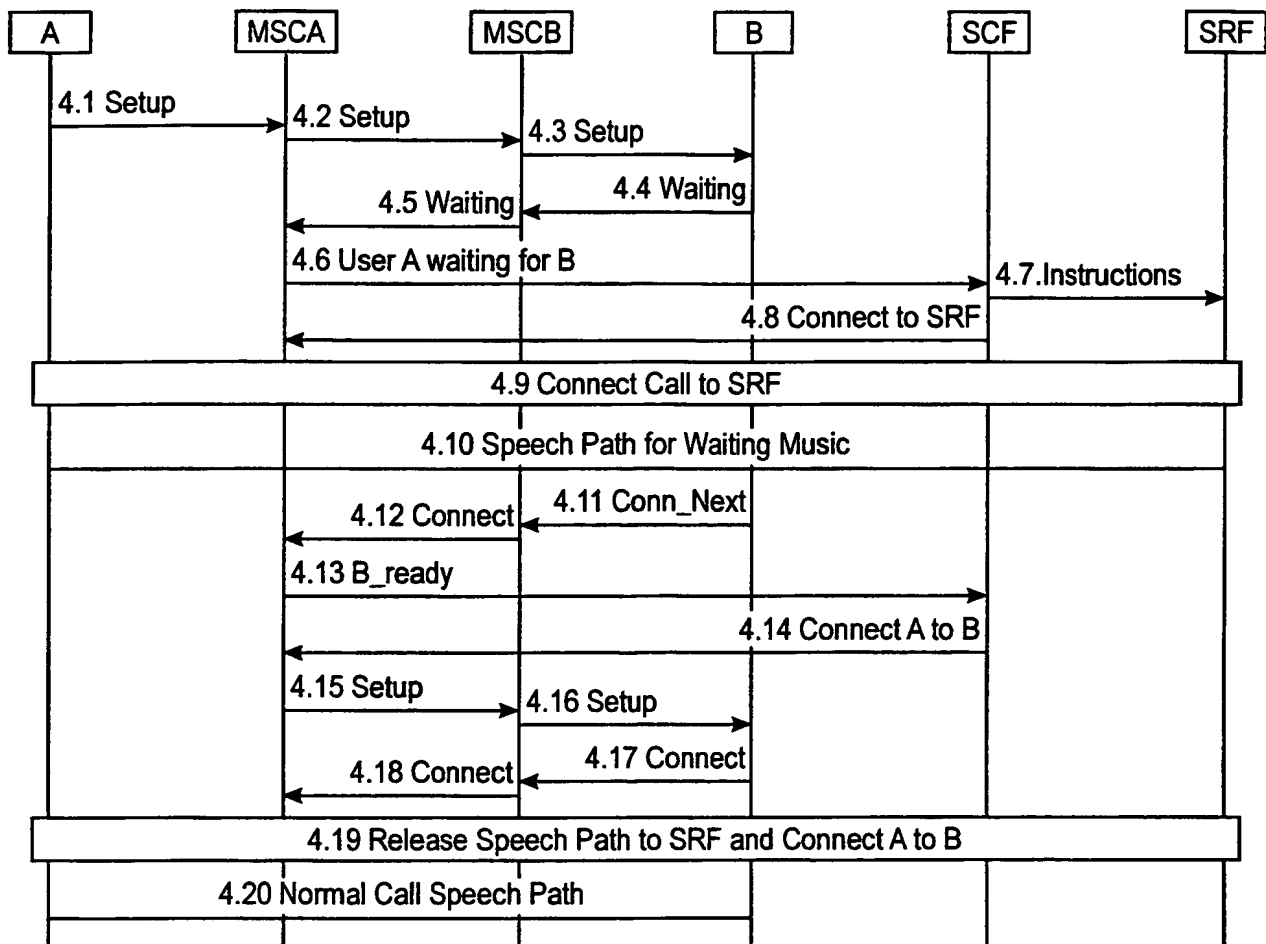
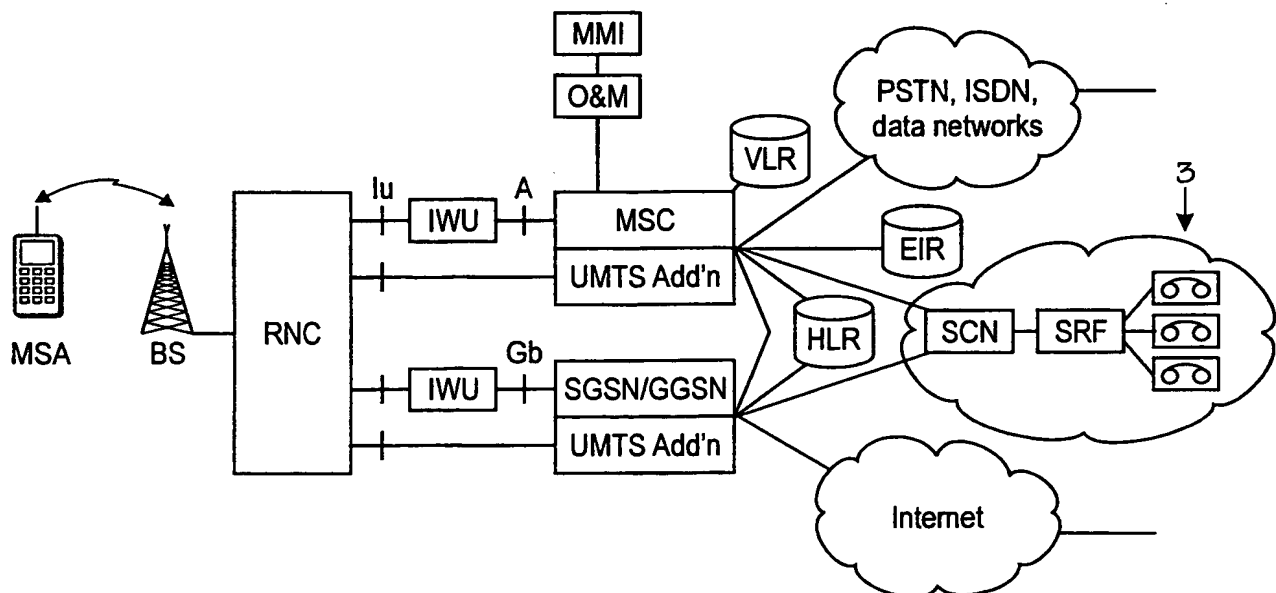


Fig. 7



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 00/00687

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04Q 7/38

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04Q, H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO 0024183 A1 (ASPECT TELECOMMUNICATIONS CORPORATION), 27 April 2000 (27.04.00), abstract --	1-4,6,13-15
X	WO 9726749 A1 (INTERACTIVE TELECOM INC.), 24 July 1997 (24.07.97), page 5, line 1 - page 7, line 9 --	1,7,13
A	US 5309512 A (BLACKMON ET AL), 3 May 1994 (03.05.94), abstract --	1-15
A	EP 0736994 A2 (ADVANCED MICRO DEVICES INC.), 9 October 1996 (09.10.96), abstract --	1-15

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

## \* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

20 November 2000

Date of mailing of the international search report

23 -11- 2000

Name and mailing address of the ISA/  
Swedish Patent Office  
Box 5055, S-102 42 STOCKHOLM  
Facsimile No. +46 8 666 02 86

Authorized officer

Stefan Hansson/JAn  
Telephone No. +46 8 782 25 00

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
**PCT/FI 00/00687**

WO	0024183	A1	27/04/00	AU	1101499 A	08/05/00
-----						
WO	9726749	A1	24/07/97	AU	708959 B	19/08/99
				AU	1362397 A	11/08/97
				CA	2167215 A	16/07/97
				CA	2218231 A,C	24/07/97
				EP	0875110 A	04/11/98
				JP	11506292 T	02/06/99
				US	5809128 A	15/09/98
-----						
US	5309512	A	03/05/94	NONE		
-----						
EP	0736994	A2	09/10/96	JP	8321881 A	03/12/96
				US	5572587 A	05/11/96
-----						